REMOVAL OF CHROMIUM (VI) FROM AQUEOUS SOLUTION BY BIOSORPTION OF RICE HUSK (RH) AND MODIFIED RICE HUSK (MRH)

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This final year project report entitled "**Removal of Chromium (VI) from Aqueous Solution by Biosorption of Rice Husk (RH) and Modified Rice Husk (MRH)**" was submitted by Razin Saad Md. Nor, in partial fulfillment of the requirements for the Degree of Bachelor Of Science (Hons.) Applied Chemistry, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

REMOVAL OF CHROMIUM (VI) FROM AQUEOUS SOLUTION BY BIOSORPTION OF RICE HUSK (RH) AND MODIFIED RICE HUSK (MRH)

Presence of toxic heavy metal contaminants in aqueous streams is one of the major environmental issues these days. Chromium (VI) is one of the toxic heavy metals that have been major concern because it is carcinogenic and associated with many health hazards. Biosorption is the ability of certain biological material to remove the heavy metals from aqueous streams. Rice husks are the good low cost adsorbent as it contain 70 – 85% of organic matter (lignin, cellulose, sugars, etc). The adsorption of Cr (VI) from aqueous solution using raw rice husk (RH) and HNO_3 modified rice husk (MRH) was investigated in this study using the various parameter such as contact time, biosorbent dosage and pH at optimum condition. As the time increasing the percentage of Cr (VI) uptake was increased until it reach equilibrium time and the optimum uptake capacity of Cr (VI) for contact time parameter was found at 150 min for RH (57.9%) and 180 min for MRH (73.7%). For biosorbent dosage parameter, as the absorbent dosage increased the percentage of Cr (VI) removal was increased. The optimum biosorbent dosage for RH (68.4%) and MRH (82.3%) was found at 80 g/L. The optimum pH condition for RH (71.4%) and MRH (76.4%) was revealed as the highest removal of Cr (VI) was occurring at pH 2 and pH 4. The comparison for both RH and MRH for effectiveness of Cr (VI) removal was revealed as MRH has better performance than RH.